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<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/666,611	NGUYEN ET AL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ted Kim	3746	

-- **The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**  
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to \_\_\_\_\_.
2. ☒ The allowed claim(s) is/are 1-27.
3. ☒ The drawings filed on 17 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                       |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>09/17/2003</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                                 | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|  | 9. <input type="checkbox"/> Other _____.  |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Shimokaji on 4/29/05.

The application has been amended as follows:

#### SPECIFICATION

- On page 5, paragraph [012] has been replaced by

--[012] In yet a further aspect of the present invention, a method of providing auxiliary power with a gas turbine engine comprises 1) providing a compressor module having an external housing with a forward end and an aft end, an open mode inlet duct and a closed mode inlet duct in the external housing, a forward bearing housing conically extending from the forward end of the external housing into the external housing, and a bell mouth circumferentially disposed within the external housing; 2) attaching a generator housing at the forward end of the external housing; 3) providing a generator within the generator housing; 4) attaching a combustion section attached at the aft end of the external housing; 5) extending a shaft from a turbine in the combustion section, through the compressor module and into the generator housing; 6) rotatably disposing a compressor wheel at the aft end on the shaft; 7) circumferentially disposing a compressor shroud/diffuser about the compressor wheel; 8) rotating the shaft to provide mechanical rotational power to the generator; and 9) converting the mechanical rotational power to electrical power.—

- On page 10, paragraphs 030 and 031 have been replaced by  
[030] Compressor wheel 22 can be rotated either via rotating shaft 24 or via combustion and turbine expansion of pressurized air entering compressor module 14 via closed-mode inlet duct 38. In either case, impeller blades 62 can be rotated, causing air to be pressurized as it moves along the path shown by arrows 50. Compressed air can then be allowed to exit into a compressor discharge scroll 64. This compressed air may be used to feed a combustor chamber, cool aircraft avionics system or to pressurize aircraft cabins.

[031] In a method of providing auxiliary power with a gas turbine engine according to the present invention, it can be seen that compressor module 12 may be used to provide a source of auxiliary power. Generator 20 may be attached at forward flange 32 of external housing 34. Combustion module 12 may be attached at aft flange 30 of external housing 34. Shaft 24 may be extended from combustion module 12, through compressor module 14 and into generator 20. Compressor wheel 22 is rotatably disposed at the end of shaft 24, opposite combustion module 12. A compressor shroud and/or diffuser 60 may be circumferentially disposed about compressor wheel 22. Shaft 24 may be rotated by turbine wheel 23 in the combustion module 12 to provide mechanical rotational power to generator 20, which converts this mechanical rotational power to electrical power.

Support from these changes is manifest from the drawings and the rest of the specification including pages 7-8, the end of paragraph [021].

## CLAIMS

- Claims 19, 20, 22, 24, 25 have been amended as follows:

19. (amended) The gas turbine engine according to claim 18, wherein when said aircraft is on the ground: said shaft is rotated by a turbine in said combustion section, said shaft rotates said compressor wheel and provides shaft rotational motion for said generator; said open mode inlet duct communicates with atmospheric air; and said closed mode inlet duct is closed.

20. (amended) The gas turbine engine according to claim 18, wherein when said aircraft is operated in flight: said compressor wheel is rotated by combustion and turbine expansion of the pressurized bleed air delivered from said propulsion engine into said closed mode inlet duct, ~~said compressor wheel rotates said shaft~~ to provide shaft rotational motion for said generator.

22. (amended) The gas turbine engine according to claim 21, wherein: when said aircraft is on the ground: said shaft is rotated by a turbine in said combustion section, said shaft rotates said compressor wheel and provides shaft rotational motion for said generator, said open mode inlet duct communicates with atmospheric air, and said closed mode inlet duct is closed; and when said aircraft is operated in flight: said compressor wheel is rotated by combustion and turbine expansion of the pressurized bleed air delivered from

said propulsion engine into said closed mode inlet duct, ~~said compressor wheel rotates said shaft~~ to provide shaft rotational motion for said generator.

24. (amended) The method according to claim 23, wherein said shaft is rotated by a turbine in said combustion section, said shaft rotates said compressor wheel and provides shaft rotational motion for said generator, said open mode inlet duct communicates with atmospheric air, and said closed mode inlet duct is closed.

25. (amended) The method according to claim 23, further comprising delivering pressurized air into said closed mode inlet duct, ~~to combustion and turbine expansion of which rotates said compressor wheel, said compressor wheel rotating said shaft~~ to provide said mechanical rotational power.

### REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance: the prior art of record do not fairly teach in permissible combination the claimed invention. In particular, none of the art of record fairly teach: "a compressor module for a turbine engine comprising: an external housing having a forward end and an aft end; *an open mode inlet duct and a closed mode inlet duct in said external housing*; a forward bearing housing conically extending from said forward end of said external housing and into said external housing; and a bell mouth circumferentially disposed within said external housing." The closest art of record for teaching *an open mode inlet duct and a closed mode inlet duct in said external housing* is the Chen et al (6,101,806) reference which shows a compressor inlet 50 and additional inlets 70 for stored air and 80 for bleed air. However, these additional inlets are not attached to the compressor module but allow air to enter the combustion section (see col. 3, lines 38+; col. 4, lines 19+). Blizzard teaches a compressor module with valve 48 and an inlet 42 and additional inlet 72, however the

additional inlet 72 is not considered to be an inlet duct in the external housing. Other art of record which are relevant is Jones et al which show a conical housing for the forward bearing 12 and a bellmouth at 44 and but does not teach an external housing with the claimed inlets. Karstensen teaches a speed sensor with housing 46.

As for the changes made above to the specification and claims, the examiner's position was that portions of original filed disclosure and claims was not consistent in describing the closed mode operation and these changes were made to make the operation consistent with pages 7-8, the end of paragraph [021]. Furthermore, it was clear from the drawings and disclosure that the turbine is located in the combustion section and as the disclosed combustor itself cannot directly rotate a shaft, the turbine within the combustion section was claimed to clarify the relationship. Lastly, the compressor wheel cannot rotate the shaft to provide power -- it is an absorber of energy, but rather it is the turbine that rotates the shaft.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The

Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler, can be reached on 571-272-4834.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>



Ted Kim  
Primary Examiner  
May 2, 2005

Technology Center 3700 Receptionist  
Patents Assistance Center

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